REMARKS

In the present Reply, claims 42, 44, 52, 53 and 54 have been amended. Also, claims 74-83 have been added. Thus, claims 34, 35, 37, 40, 42-49 and 52-73 are pending.

No new matter has been added by way of these amendments, since one of skill in the art would clearly understand that the changes are editorial in nature and are for clarification purposes. Thus, by amending these terms in order to clarify the claimed invention, Applicants in no way are conceding any limitations with respect to the interpretation of the claims under the Doctrine of Equivalents. Further, no new matter has been added with the newly presented claims, since these claims have support in the base claims.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw the only rejection and allow the currently pending claims.

Issues Under 35 U.S.C. § 112, First Paragraph

Claims 34, 35, 37, 40, 42-49 and 52-73 stand rejected under 35 U.S.C. § 112, first paragraph, for asserted lack of enablement. This rejection is respectfully traversed, and reconsideration and withdrawal thereof are respectfully requested.

(A) No prima facie Case Has Been Established

A *prima facie* case of nonenablement has not been established, and the burden of proving enablement has not shifted to Applicants. It is incumbent upon the Patent Office, whenever a rejection on this basis is made, to explain *why* it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement. *In re Marzocchi and Horton*, 169 USPQ 367 (CCPA 1971).

The "initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention on any ground is always upon the examiner." *Ex parte* Parks, 30 USPQ2d 1234, 1236 (citing In *re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992)); *see also In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984). Applicants respectfully submit that the burden of proving patentability (enablement) has not shifted to Applicants, since the Examiner has given no scientific basis as to why the present specification would not guide one of skill in the art in making and using the present invention. The structure and making of hydrates is known in the present art, and a specification need not disclose what is well known in the art. *See* M.P.E.P. § 2164.05; *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). Instead of denying patentability as set forth in the Office Action, the disclosure of the

present invention (Applicants' specification) must be given the presumption of correctness and operativeness. That has not been done here by the Examiner. Thus, Applicants respectfully submit that the present rejection is improper.

Second, the Examiner has not established a *prima facie* case of nonenablement, because the Examiner has not provided "acceptable evidence of nonenablement". *See Utter v. Hiraga*, 6 USPQ2d 1709, 1714 (Fed. Cir. 1988) (That some experimentation is necessary does not preclude enablement, however, unless the amount of experimentation is unduly extensive); *In re Wright*, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). One having ordinary skill in the art could make or use the present invention without undue experimentation based on the present written description and coupled with information known in the art. The Examiner has not presented any acceptable evidence or reasoning that would counter or be inconsistent with the present specification. Instead, the Examiner only discusses the West reference (*Solid State Chemistry*) (discussed in more detail below), which is based on solvates. Further, the Examiner admits water and organic solvents are disclosed in the present specification, yet concludes no solvate or hydrate is produced (see the Office Action at page 3, lines 3-4 from the bottom). This assertion is not scientifically sound, and thus there is no presentation of scientific evidence to rebut the presumption of correctness and operativeness that is given the present application. In other words, the

Patent Office has not sufficiently and adequately explained as to why it doubts the truth or accuracy of Applicants' supporting disclosure as required in the CCPA decision of *In re Marzocchi and Horton*. Without acceptable evidence or reasoning, the Examiner must take the present disclosure as complying with 35 U.S.C. § 112, first paragraph. Accordingly, withdrawal of this rejection is respectfully requested.

(B) Rebutting the Instant Rejection

Even assuming, for argument's sake, that a *prima facie* case of non-enablement has been established (which Applicants traverse), Applicants respectfully submit that this rejection has been obviated as explained below. A proper analysis for enablement (or lack thereof) would require a weighing of the various *Wands* factors, wherein such factors are discussed below. 858 F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988).

Wands factors: state of the art; predictability in the art

Regarding the *Wands* factors (2) the state of the art and (3) predictability in the art, hydration involves reaction of molecules of water with the compounds of claim 1, wherein the H-OH bond is not split (according to *Hawley's Chemical Condensed Dictionary* (13th Ed.); a copy of the excerpt is hereby attached). If the water is split off by heat, such a reaction yields the original, anhydrous compound itself. Thus, one of skill in the relevant art understands that the state of the art

for hydrates is that one or more water molecules may form around the compounds of the present invention. Further, if no water molecules bind to the compound, then the compound is merely in its (original) anhydrous form. Thus, there is no unpredictability in the art with respect to formation of hydrates as asserted in the Office Action.

Further, the Examiner analogizes "hydrates" with "solvates" (e.g., see page 4, paragraph g) of the Office Action), and further refers Applicants to the West reference (*Solid State Chemistry*; page 358). However, no evidence has been provided to establish that this analogy is even proper. Thus, Applicants traverse the analogy and reasoning presented in the Office Action.

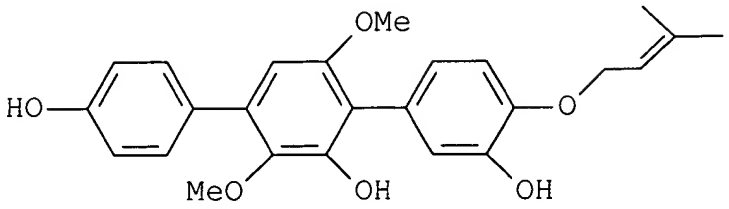
The Examiner also asserts "Thus, in the absence of experimentation one cannot predict if a particular solvent will solvate any particular crystal" (page 4, lines 15-17 of the Office Action). However, as mentioned, should water not bind to the compound, the compound is merely in its anhydrous form. One of skill in the art understands that there is no unpredictability here.

The Examiner also refers Applicants to the West reference, which generally explains a "solid solution" including metal alloy, mineral, etc., for solvates, and further asserts that the state of the art is not predictable as to whether solvates will form or what their composition will be (see page 4, starting at line 8 of the Office Action). Though a hydrate may form an "interstitial solid solution," this does equal or

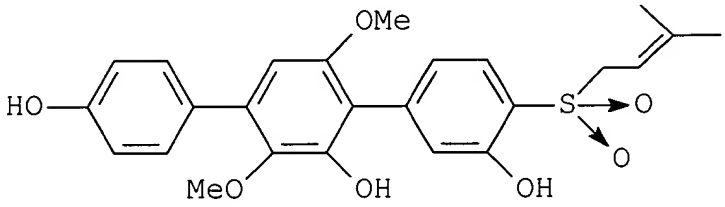
correlate to little or no predictability as to whether or not a hydrate will form.

Also, at page 4, lines 14+ of the Office action, the Examiner appears to quote only a part of the West reference (*Solid State Chemistry*). The West reference further states: "Instead, this has to be determined experimentally." However, this disclosed experimentation can be considered as *routine*, and not necessarily as *undue*. Therefore, no evidence has been provided by the Examiner to show that undue experimentation is even involved in making and using hydrates of the present invention.

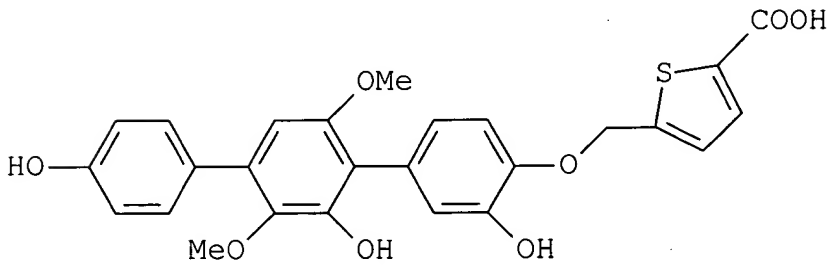
Also in response to such an assertion, Applicants submit it that has been well-known in the art that the compounds, which have many polar groups, tend to form hydrates thereof. When one having ordinary skill in the art looks at the structures of the example compounds, that skilled artisan can choose the compounds having many polar groups and form hydrates in conventional and usual manners. For example, when the compounds, such as I-1, I-226, I-1140 and the like of the present invention, are dissolved in water or a mixed solvent of water with a suitable organic solvent, the substance precipitated from the solution may form a hydrate. This can be illustrated as follows:



I-1



I-226



I-1140

Thus, one skilled in the art would be able to predict, without any undue experimentation, which compounds tend to form hydrates and would be able to attain any hydrate of the compound of the present invention. As mentioned, one of skill in the relevant art further understands that the state of the art for hydrates is that one or more water molecules may form around the compounds of the present invention.

Thus, based on the above, *Wands* factors (2) the state of the art and (3) predictability in the art weigh in Applicants' favor.

Wands factor: presence or absence of working examples

With regard to *Wands* factor (5) presence or absence of working examples, the Examiner asserts that there exist no working examples of a hydrate in Applicants' specification. Further, starting at page 3, line 7 of the Office Action, the Examiner states that the claimed hydrates of pending claim 1 "cannot be simply willed into existence," and supports this assertion with certain case law (*Morton Int'l Inc. v. Cardinal Chemical Co.*, 28 USPQ2d 1190). Applicants respectfully traverse these conclusions and reasoning.

Some of the working compound examples may have been hydrates, but Applicants need not confirm what is known in the art. As mentioned above, a specification need not disclose what is well known in the art. *See Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). There is no "willing (of hydrates) into existence" here.

Applicants also traverse the application of *Morton Int'l* because the facts are not analogous to the instant situation. If it is the Examiner's position that procedures are needed to make hydrates, which allegedly are not disclosed, Applicants respectfully refer the Examiner to the state of the art wherein the skilled artisan readily understands

how to make and use hydrates of the present invention. Hydration involves reactions of the claimed compounds with water (or mixture of water and a suitable organic solvent). Thus, Applicants traverse the use of *Morton Int'l* because of inapplicable facts.

Applicants further submit that if there is no undue experimentation in making and using the instantly claimed compounds, there is also no undue experimentation in making and using the hydrates thereof. Hydration involves reaction of molecules of water with the compounds of claim 1, wherein the H-OH bond is not split. Otherwise, if the water is split off by heat, such a reaction yields the original, anhydrous compound itself. Thus, there is no undue experimentation in making and using hydrates of the instantly claimed compounds as one of skill in the art would understand.

Wands factor: breadth of the claims

With regard to the *Wands* factor of (6) breadth of the claims, the Examiner asserts that the present invention has a broad scope. However, a broad scope of a claim does not equate to *prima facie* nonenablement. Thus, Applicants respectfully submit that this *Wands* factor lies in Applicants favor as well.

Even with a broad scope of the present invention, one of ordinary skill in the art would be able to select compounds that tend to form hydrates, as mentioned above (see also the Examples illustrated above).

Therefore, there is no undue experimentation to make and use the present invention. Withdrawal of the present rejection is respectfully requested.

All other *Wands* factors

Applicants respectfully submit that all other *Wands* factors not discussed in the Office Action lie in Applicants' favor.

With regard to *Wands* factor (1) nature of the invention, hydration merely involves reaction of the instantly claimed compounds with water and/or water plus a suitable solvent. One of skill in the art understands the process of hydration, as well as how to make and use hydrates of a compound. Applicants also refer the Examiner to all U.S. patents that claim hydrates, wherein the USPTO has already decided the patentability of hydrates without this enablement issue. Thus, this *Wands* factor also lies in Applicants' favor.

With regard to *Wands* factors (4) amount of direction or guidance present and (7) quantity of experimentation needed, the state of the art coupled with Applicants' specification sufficiently guide one of skill in the art in making and using the present invention. For instance, many other parts of the present specification disclose how to make and use the present invention such as, *e.g.*, in the form of tablets, granules, etc. (see page 47, lines 15-22 of the present specification); to treat allergic diseases or conditions (see page 47, lines 6-14); and

working Examples of the claimed compounds, wherein adding water forms hydrates thereof. The state of the art is discussed above, whereby hydration does not involve undue experimentation. Thus, there is ample guidance in Applicants' specification in making and using the present invention. Accordingly, Applicants submit that *Wands* factors (4) amount of direction or guidance present and (7) quantity of experimentation needed, lie in Applicants' favor.

Summary

First, the burden of proving enablement has not shifted to Applicants. Without acceptable evidence or reasoning, the Examiner must take the present disclosure as complying with 35 U.S.C. § 112, first paragraph. Thus, the instant rejection is improper and Applicants request withdrawal of this rejection.

Second, Applicants respectfully submit that knowing how to make and use a hydrate of the instantly claimed compounds is within the skill of person in the pertinent art. Also, a proper weighing of all *Wands* factors lies in Applicants' favor. Thus, this rejection has been overcome. Accordingly, withdrawal thereof is respectfully requested.

Conclusion

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts

to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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MSW/ETP
0032-0248P

Attachment:
Excerpt from *Hawley's Chemical Condensed Dictionary* (13th Ed.)

Hawley's

Condensed Chemical

Dictionary

THIRTEENTH EDITION

Revised by

Richard J. Lewis, Sr.

JOHN WILEY & SONS, INC.

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alternate units with a high molecular weight. Found in vitreous humor (of the eye), synovial fluid, pathologic joints, group A and C hemolytic streptococci, and skin. It appears to bind water in the interstitial spaces, forming a gel-like substance that holds the cells together. Its solutions are highly viscous. The polymeric structure is broken down by the enzyme hyaluronidase.
See "Actimoist" *[Active]*.

"Hyamine" *[Rohm & Haas].* TM for quaternary-ammonium-type bactericides, algicides, and fungicides, supplied as water-soluble crystals or aqueous solutions.

Hyatt, John Wesley. (1837–1920) Hyatt is generally credited as being the father of the plastics industry. In 1869, he and his brother patented a mixture of cellulose nitrate and camphor which could be molded and hardened. Its first commercial use was for billiard balls. The TM "Celluloid" was the first ever applied to a synthetic plastic product; its flammability hazard limits its use.

"Hydan" *[Du Pont].* TM for methionine hydroxy analog c. 90%.
Use: A source of methionine (an essential amino acid) for poultry, dog, and livestock feeds.

hydantoin. (glycolylurea).
CAS: 461-72-3. $NHCONHCOCH_2$.
Properties: White, odorless solid; crystallizing in needles. Mp 220C. Slightly soluble in water and ether; soluble in alcohols and solutions of alkali hydroxides.
Use: Intermediate in the synthesis of pharmaceuticals, textile lubricants, and certain high polymers, including epoxy resins.

hydnocarpic acid. $C_{16}H_{28}O_2$. A component of chaulmoogra oil.

hydrabamine pencillin V. (hydrabamine phenoxymethylpenicillin).
Properties: A water-insoluble mixture of crystalline phenoxymethylpenicillin salts consisting chiefly of the salt of *N,N'*-bis(dehydroabietyl)ethylenediamine with smaller amounts of the salts of the dihydro and tetrahydro derivatives.
Use: Medicine (antibacterial).

"Hydraid" *[Calgon].* TM for a family of water-soluble organic polymers, some cationic, anionic, and nonionic, of various molecular weights and coagulation properties.
Use: Paper and pulp mill retention, drainage and clarification aids.

hydralazine hydrochloride.
(1-hydrazinophthalazine hydrochloride).
$C_8H_5N_2NHNH_2HCl$.
Properties: White, crystalline powder; odorless. Mp 270–280C (decomposes). Very slightly soluble in ether and alcohol; soluble in water, pH (2% solution) 3.5–4.5.
Grade: NF.
Use: Medicine (antihypertensive agent)

"Hydral"700 Series. *[ALCOA].* $Al_2O_3 \cdot 3H_2O$ or $Al(OH)_3$, of extremely fine, uniform particle size. TM for several grades of hydrated aluminum oxides.
Properties: Fluffy, snow-white powders.
Use: As fillers in rubber, paper, plastics, adhesives, polishes, inks, paints, cosmetics, and as a flame-retardant in plastics.

"Hydraphthal" *[Du Pont].*
TM for a combination solvent and detergent for textile scouring.

hydrargaphen. (phenylmercury methylenedinaphthalenesulfonate).
CAS: 14235-86-0. $C_{33}H_{24}Hg_2O_6S_2$.
Properties: Extremely fine powder. Insoluble in water. Forms colloidal dispersions with strong adsorptive power in sodium or potassium dinaphthylmethane disulfonates.
Hazard: A poison.
Use: Biocide for protection of wool, leather, paints, and wood products.

hydrase. See hydrolase.

hydrate. See hydration.

hydrated aluminum oxide. See alumina trihydrate.

hydrated silica. See silicic acid.

hydration. (1) The reaction of molecules of water with a substance in which the H—OH bond is not split. The products of hydration are called hydrates, e.g.,

$$CuSO_4 + 5H_2O \rightarrow CuSO_4 \cdot 5H_2O$$

A given compound often forms more than one hydrate; the hydration of sodium sulfate can give $Na_2SO_4 \cdot 10H_2O$ (decahydrate), $Na_2SO_4 \cdot 7H_2O$ (heptahydrate), and $Na_2SO_4 \cdot H_2O$ (monohydrate). In formulas of hydrates, the addition of the water molecules is conventionally indicated by a centered dot. The water is usually split off by heat, yielding the anhydrous compound.
See water of crystallization; gas hydrate.

(2) The strong affinity of water molecules for particles of dissolved or suspended substances that is the fundamental cause of electrolytic dissociation. Ions and other charged particles thus acquire a tightly held film of water, an effect that is important in the stabilization of colloidal solutions. The phenomenon is also called solvation. The term *hydration* is used in the paper industry to describe the

combination of water with wood pulp in the beater, as a result of which fiber-to-fiber adhesion is increased by hydrogen bonding.
See solvation.

hydraulic. (1) Descriptive of a machine or operation in which a liquid is used to exert or transfer pressure, e.g., hydraulic press, hydraulic fracturing. The liquid is usually water, but it may also be of higher viscosity such as a heavy oil or glycol-type lubricant, as in brake fluid. (2) Descriptive of a material that hardens on addition of water, e.g., hydraulic cement.

hydraulic barking. Removal of bark from logs by impingement of a stream of water delivered from one or more nozzles at a pressure of 1200–1400 psi. Several types of machines are used, the best known being the Hansel barker.

hydraulic cement. See cement, hydraulic.

hydraulic fluid. A liquid or mixture of liquids designed to transfer pressure from one point to another in a system on the basis of Pascal's law, i.e., pressure on a confined liquid is transmitted equally in all directions. For industrial use, such fluids are based on paraffinic and cycloparaffinic petroleum fractions, usually with added antioxidant and viscosity index improvers. Flame-resistant types include additives such as phosphate esters or emulsions of water and ethylene glycol. The brake fluids used in autos are composed of (1) a lubricant (polypropylene glycol of 1000–2000 mw, a castor oil derivative, or a synthetic polymeric mixture of monobutyl ethers of oxyethylene and oxypropylene glycols); (2) a solvent blend (mixture of glycol ethers); and (3) additives for corrosive resistance, buffering, etc.; bp 375–550F. The composition and performance characteristics are specified by the Society of Automotive Engineers.

hydraulic fracturing. A method of enhanced recovery of natural gas and petroleum. An aqueous solution of a water-soluble gum (e.g., guar), in which coarse sand or sintered bauxite is suspended, is introduced through a well bore under extremely high pressure into the rock structure in which the gas or oil is entrained. This creates minute fissures (fractures) in the rock that are held open by the suspended particles after the liquid has drained off. The hydrocarbon flows through these fissures to the well bore and is evacuated to a pipeline. The sand and bauxite are called "proppants" by petroleum engineers because they prevent the fissures from closing. Sand is used in shallower wells and bauxite in formations more than 10,000 ft deep.
See chemical flooding.

hydraulic lime. See lime, hydraulic.

hydraulic press. A simple machine (the only one discovered since prehistoric times) that operates on Pascal's principle (1650): pressure applied to a unit area of a confined liquid is transmitted equally in all directions throughout the liquid. A hydraulic press is composed of a large piston in an enclosed chamber; its top is attached to a platen that rests on the members of a metal frame when the press is open. Water (or oil) is pumped into the chamber through a valve; once it has been filled, whatever pressure per square inch is applied at the valve will be transmitted to *every* square inch of the piston and the walls of the chamber. Thus, for a piston whose cross-sectional area is 100 sq in., 10 psi at the valve will exert 1000 lb pressure on the bottom of the piston, causing it to rise and the press to close. The pressure on the object being pressed varies inversely with its area. Hydraulic presses exerting pressures up to 15 *tons* are used for shaping steel products. Less dramatic are those for molding rubber and plastics, compressing laminates, dewatering solids, and expressing vegetable oils. Some have up to a dozen platens (decks) for multiple-product work. The same principle is used to activate plungers on injection-molding presses.

hydrazine. (hydrazine base; hydrazine, anhydrous; diamine).
CAS: 302-01-2. H_2NNH_2.
Properties: Colorless, fuming, hygroscopic liquid. Mp 2.0C, bp 113.5C, mp 1.4C, d 1.004 (25/4C), bulk density 8.38 lbs/gal, flash p 126F (52.2C) (OC), autoign temp 518F (270C). Miscible with water and alcohol; insoluble in chloroform and ether. Strong reducing agent and diacidic but weak base. Combustion of hydrazine is highly exothermic, yielding 148.6 kcal/mole; nitrogen and water are products.
Derivation: The preferred method is a two-step process: (1) reaction of sodium hypochlorite and ammonia to yield chloramine (NH_2Cl) and sodium hydroxide; (2) reaction of chloramine, ammonia, and sodium hydroxide to yield hydrazine, sodium chloride, and water. Noteworthy is the need to carry out the reactions in the presence of such colloidal materials as gelatin, glue, or starch to prevent unwanted side reactions that would reduce the yield of hydrazine. An older method utilized the reaction of sodium hypochlorite or calcium hypochlorite with urea.
Grade: To 99% pure.
Hazard: Severe explosion hazard when exposed to heat or by reaction with oxidizers. Toxic by ingestion, inhalation, and skin absorption; strong irritant to skin and eyes; a carcinogen (OSHA). TLV: 0.1 ppm in air.
Use: Reducing agent for many transition metals and some nonmetals (arsenic, selenium, tellurium), as well as uranium and plutonium; corrosion inhibitor in boiler feedwater and reactor cooling water; wastewater treatment; electrolytic plating of metals on glass and plastics; nuclear fuel reprocessing; redox reactions; polymerization catalyst; shortstopping agent; fuel cells; blowing agent; scavenger for